



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,604	09/19/2001	Timothy L. Hoopman	49933US032	1214
32692	7590	05/03/2004	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			DEL SOLE, JOSEPH S	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	
			1722	

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/955,604

Applicant(s)

HOOPMAN ET AL.

Examiner

Joseph S. Del Sole

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10/28/03 (entered 3/24/04).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23,24,30-32,89,90,92,93,134-136,138-143 and 145-148 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23,24,30-32,89,90,92,93,134-136,138-143 and 145-148 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. In view of the appeal brief filed on October 28, 2003 (entered in the PTO on 3/24/04), PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 23, 24, 30-32, 89-90, 92-93, 134-136, 138-143 and 145-148 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed

Art Unit: 1722

invention. Each of the above listed claims includes the limitation "wherein each of the cavities has a single opening", which is a new matter limitation not described in the original specification. In so much as the Random House College Dictionary defines "single" as "one only; only one in number", the original specification does not teach any of the cavities as having one and only one opening in number. Furthermore, the original specification does not preclude the cavity from having more than one opening. Still further, the drawings do not show one and only one opening, nor do the drawings preclude multiple openings. Therefore it would not be conveyed to one of ordinary skill in the art that the inventors had possession of a tool wherein each of the cavities has a single opening.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 23, 30, 31, 89, 92, 134-136, 138-143 and 145-148 are rejected under 35 U.S.C. 102(b) as being anticipated by Rochlis (3,312,583).

Rochlis teaches a production tool suitable for use in manufacturing an abrasive article (col. 1, lines 50-56) which includes a plurality of cavities having different geometric shapes, angles and dimensions. The production tool can be a coating roll (Fig 19) or an etched (engraved) metal roll (col 3, lines 52-63; col 13, lines 15-17 and 62-67). The production tool can have parallel rows of cavities as shown in Figures 21

Art Unit: 1722

and 22 with a first plurality of rectangular cavities, a second plurality of circular cavities, and a third plurality of triangular cavities. At least one of the angles or base edge lengths of the first plurality is different from all the angles or base edge lengths of the second plurality and of the third plurality. At least one of the angles or base edge lengths of the second plurality is different from all the angles or base edge lengths of the first plurality and of the third plurality. Rochlis discloses that the cavities of the production tool can have different sizes (col 2, lines 66-70; col 6, lines 17-22; col 9, line 61 - col 10, line 52; i.e. different heights). Rochlis discloses that the cavities and products can have pyramidal or truncated pyramidal shapes (i.e., figs 10-13 and col 13, lines 51-58). Rochlis discloses that the production tool can have a plurality of different types (shapes) of cavities (col 13, lines 29-35). Figures 21 and 22 show a first row of cavities with a rectangular cross section which defines a first base edge length extending parallel to the first row and a second base edge length extending perpendicular to the first row, wherein the second base length of all the cavities in the first row is the same (of course they also can be different sizes as mentioned above), and show a first rectangular cavity adjacent a second circular cavity, the second circular cavity being adjacent a third triangular cavity. Each of the cavities has a single opening.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 23, 24, 31, 32, 89, 90, 92, 93, 134-136, 138-143 and 145-148 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rochlis (3,312,583).

The 102 rejection above is based on the interpretation of the alternatives for the production tool disclosed by Rochlis as being anticipatory. If applicants believe that the disclosed alternatives are NOT anticipatory, then it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the production tool of Rochlis with the alternatives disclosed by Rochlis because Rochlis explicitly discloses that the production tool can be modified with such disclosed alternatives.

Rochlis discloses a production tool, as mentioned above, having 3 different types or shapes of cavities defining three pluralities of groups of cavities (Figs 21 and 22), but does NOT explicitly disclose a fourth plurality or group of cavities having a fourth different type of cavity.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the production tool to have four pluralities or groups of cavities having four different types of cavity because Rochlis discloses that the production tool can have a plurality of different types of cavities and/or because Rochlis (Figs 21 and 22) discloses a production tool example having not just two but three pluralities or groups of cavities having three different types of cavities. Note that different shapes will read on the respective instant claims. For example, if the three different types had cross sections of a square, a pentagon, and a hexagon, then each of the cavities would have a boundary defined by at least four surfaces wherein adjacent planar surfaces of one cavity meet at an edge to define an angle of intersection therebetween, wherein the at least one angle of intersection of the first cavity is different from all the angles of the second and third cavities, and wherein at least an angle of intersection of the second cavity is different from all the angles of intersection of the first and third cavities. Various different types would also provide different base edge lengths.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 23, 24, 30-32, 89, 90, 92, 93, 134-136, 138-143 and 145-148 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 17, 20, 21, 25-28, 33-54, 94-96 and 98-111 of copending Application No. 09/520,032 in view of Rochlis (3,312,583).

Claims 17, 20, 21, 25-28, 33-54, 94-96 and 98-111 of copending Application No. 09/520,032 disclose the production tool substantially as instantly claimed. Rochlis discloses a production tool as mentioned above. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the production tool of claims 17, 20, 21, 25-28, 33-54, 94-96 and 98-111 of copending Application No. 09/520,032 such that the cavities have a first, second, third or more plurality of cavities, each plurality having a different shape because such modification would produce a product having a first, second, third, or more plurality of different shapes on the product as disclosed by Rochlis. Note that the possible different shapes and combinations thereof disclosed by Rochlis would provide the dimensions, planar surfaces, angles edges, boundaries and shapes as recited by the instant claims.



This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Response to Arguments***

12. Applicant's arguments filed with the appeal brief of 10/28/03 (and entered by the PTO on 3/24/04) have been fully considered but they are not persuasive.

Applicants argue that claims 23, 30, 31, 89, 92, 134-136, 138-143 and 145-148 are not anticipated under 35 U.S.C. 102(b) by Rochlis (3,312,583).

Applicants argue that Rochlis does not disclose every element of the claimed invention, particularly each of the cavities having a single opening, and that Rochlis (col 3, lines 40-49) requires the mold to have a laminate construction with multiple openings (i.e., openings between the laminate layers in addition to the openings through which mold material enters the cavity), the openings between the laminate layers allowing air or gas from the mold material to escape.

The Examiner agrees that there are multiple openings: openings between the laminate layers which define vent openings in addition to openings receiving the molding material which define mold cavity openings. Clearly, the vent openings do not perform any shaping function and thus are NOT part of the cavity. Each cavity has a single opening which defines the cavity.

Applicants further traverse the assertion (by the Examiner) that the vent openings are not part of the mold cavities.

It appears that appellant's arguments are not corresponding to what is actually claimed. Each of the cavities having a single opening does NOT negate the mold from

having other non-cavity openings. Again, as mentioned above, the vent openings do not perform any shaping function and thus are NOT part of the molding cavity.

Furthermore, if the vent openings were a part of the mold cavity, then wouldn't the mold material flow into the vent openings to also escape from the mold. Clearly, Applicant's interpretation of Rochlis that the mold cavities include the vent openings is incorrect.

The vent openings are NOT a part of the cavity.

Applicant's further traverse the Examiner alleging that Applicants (instant claims language) do not preclude multiple openings in the instant claims. Applicants argue that single is defined as "one only; only one in number".

Note that the instant claim language requires each of the cavities to have a single cavity, and thus each cavity has one opening only, only one opening in number.

Rochlis discloses that each cavity has a single cavity opening, whereas the mold or production tool has vent openings in addition to the cavity openings. Thus, each of the cavities having a single opening does not preclude the mold or production tool from having other openings.

Applicants argue that there is no disclosure in Rochlis of mold constructions without openings between the laminate layers.

The Examiner disagrees. Rochlis (col 3, lines 40-46) discloses that "most embodiments" permit air or other evolved gas to escape, and Rochlis (col 13, lines 70-75) discloses that evolved air or gas "may" escape between mating surfaces of the laminated layers. Thus, in the embodiments (in oppositions to "most embodiments")

where there are no openings to permit air or other evolved gas to escape, each cavity has a single opening.

Applicants argue that Rochlis does not contain an enabling disclosure. Applicants argue that Rochlis does not teach one of skill in the art would make a production tool with even one mold cavity having a single opening.

It appears that Applicants are arguing that Rochlis does not have an enabling disclosure for making a mold or production tool without the vent openings. And further cites col 14, lines 19-26 of Rochlis to argue that vent openings must exist in any embodiment.

The Examiner agrees that Rochlis is enabling for a laminated mold construction that includes openings between the mating surfaces of the laminations. However, as mentioned above, in other embodiments of Rochlis, the laminated mold has no openings for gas or air to escape. A complete reading of Rochlis, as discussed above, shows that there are embodiments in which the gas escape openings do not exist, and thus one of ordinary skill in the art would have anticipated cavity openings without vents. Thus, Rochlis is enabling for making a laminated mold or production tool without the vent openings which would define each mold cavity with a single opening. Regardless, a cavity opening is a single opening because a vent opening (one not involved in shaping) is not a cavity opening.

Applicants argue that claims 23, 24, 31, 32, 89, 90, 92, 93, 134-136, 138-143 and 145-148 are not obvious under 35 U.S.C. 103(a) by Rochlis (3,312,583).

Applicants argue that Rochlis does not teach or suggest how one of ordinary skill in the art would make a production tool with each cavity having a single opening or with a single opening in each cavity.

The Examiner disagrees as this is discussed at length above.

Applicants argue that the Office action fails to establish a prima facie case of obviousness.

However, modifying the production tool of Rochlis with the alternatives disclosed by Rochlis has clear motivation since Rochlis explicitly discloses that the production tool can be modified with such disclosed alternatives.

Applicants argue that Rochlis teaches away from the claimed invention in view of the fact that Rochlis emphasizes the importance of the openings between the mating surfaces of the laminations to allow evolved air or gas to escape. Applicants argue that one of skill would expect that a mold with only a single opening in each cavity would not be functional since the openings between the mating surfaces of the laminations allow evolved air or gas to escape.

The Examiner disagrees. Rochlis does NOT disclose that allowing evolved air or gas to escape is CRITICAL or REQUIRED for the apparatus to operate. Furthermore, Rochlis explicitly discloses that in some embodiments there are no openings in the laminated mold or laminated production tool allowing evolved air or gas to escape, as mentioned above.

The Applicant argues that allowing air or gas to escape is an "important aspect" of the invention of Rochlis and that no gas can accumulate in "any embodiment".

The Examiner disagrees. For the reasons previously stated, a full reading of Rochlis reveals teachings in which there are embodiments in which there are no openings allowing air or gas to escape.

Applicants argue that it is impermissible to use hindsight as an obviousness test.

It must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F. 2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant's argue that the use of Rochlis alone in an obviousness rejection can only occur by the impermissible use of hindsight reasoning.

The Examiner disagrees that a single reference 103 rejection can only occur by hindsight reasoning, and Applicant's have not given any factual evidence to support such a conclusory statement. Note that the obviousness rejection by the Examiner took into account only the knowledge disclosed by Rochlis and knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Applicant's disclosure.

The Applicant argues that the Applicant believes the alternatives disclosed by Rochlis and having clear motivation are those involving embodiments with no openings for air escape.

The Examiner disagrees. Such obvious alternatives are only recited to show the obviousness of the different shapes which may be utilized for cavity openings. Even if such discussion of alternatives was used to show the obviousness of an embodiment where there are no gas escape openings, the Applicant's argument would not overcome the obviousness. The discussion of Rochlis disclosing that "most" embodiments "may" have no vent openings IS enough to show that it is obvious to create a mold without vent openings.

Nevertheless, all of the Applicant's arguments involving a discussion of the limitation "each of the cavities has a single opening" is moot because, as discussed herein, this limitation is non-allowable because it is new matter.

Applicants do NOT argue the standing provisional rejection of claims 23, 24, 30-32, 89, 90, 92, 93, 134-136, 138-143 and 145-148 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 17, 20, 21, 25-28, 33-54, 94-96 and 98-111 of copending Application No. 09/520,032 in view of Rochlis (3,312,583). In the Summary of the Appeal Brief, Applicant's state that if patentability of the instant claims is confirmed, Applicants will file a Terminal Disclaimer if such rejection is maintained.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Joseph S. Del Sole whose telephone number is (571) 272-1130. The examiner can normally be reached on Monday through Friday from 8:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Wanda Walker, can be reached at (571) 272-1151. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for both non-after finals and for after finals.

Art Unit: 1722

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from the either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 886-217-9197 (toll-free).

*Joseph S. Del S.*

J.S.D.

April 29, 2004